Industrial Engine Integrated Program Plan Task 7

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TASK 7-INTEGRATED PROGRAM PLAN

7.0 TASK OBJECTIVE

Define and develop an engine program that will develop and demonstrate the overall objectives of the Advance Turbine Program as outlined for Task 3.

7.1 INTEGRATED PROGRAM PLAN

For the engine configuration of Task 6, General Electric has identified a program which would lead to the demonstration of an ATS Industrial system which could possibly achieve the program goals for efficiency, emissions and costs. The integrated program plan consists of a nine task effort outlined as follows:

Task 1-Preliminary Design

This task will complete the preliminary design of the engine system from the concept developed in Task 6 of the Advanced Turbine System Program.

Task 2- Detail Design

This task will result in an engine final configuration and detail drawings being provided for hardware procurement.

Task 3- Hardware Procurement

This task will procure all engine and associated test hardware to conduct full scale engine testing of the ATS Industrial engine.

Task 4- Engine Assembly

This task's purpose is the assembly of a core engine for test and post test core engine assembling with its matching power turbine.

Task 5- Core Engine Test

This task is used to determine the operating characteristics of the high pressure engine system which is made up of the high pressure compressor, combustor, turbocooler, and high press turbine.

Task 6- Full Engine/No Load Test

This task is used to determine the operating characteristics of the core engine mated to the booster, intercooler and low pressure turbine system.

Task 7-Installation and Site Test

This task is used to install the full engine system for testing under load at a participating utility or power generation company.

Task 8-Prototype Testing

This task is used for the full engine testing of the engine system under load at the participating utility or power generation company.

Task 9-Data Evaluation

This task is used to review engine test data and to determine if the program goals have been met by the demonstration test of Task 8.

Figure 7.1.1 shows the program plan with the major tasks and the timing of those tasks. To demonstrate the program goals, the resulting program is estimated to be a five-year program.

ADVANCE INTERCOOLED CYCLE PROJECT

Task Name	WBS	Resource Names	1995				1996				1997				1998				1999				2000				2001		
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
ADVANCE INTERCOOLED CYCLE PROJECT(ICAD)																													
PRELIMINARY DESIGN	1																												
DETAIL DESIGN	2																												
HARDWARE PROCUREMENT	3																												
ENGINE ASSY	4																												
CORE ENGINE TEST	5																												
FULL ENGINE /NO LOAD TEST	6																												
INSTALLATION & SITE TEST	7																												
PROTOTYPE TESTING	8																												
DATA EVALUATION	9																												

Figure 7.1.1. Program Plan

7.2 RISK ASSESSMENT

Risks and challenge areas have been identified in Task 6 and are in the following general areas:

- Cycle pressure levels
- Turbocooler development
- Fuel heating and fire safety
- Combustor emissions development
- Combustor cooling
- High pressure vane cooling
- Thermal barrier coating development for the combustor and high pressure turbine vane
- Low-pressure turbine cooling

These risk areas will be addressed in Task 2 during the detail design phase.

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